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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/057,138	01/25/2002	Edgar R. Zuniga-Ortiz	TI-33986	1847

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EXAMINER
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THAI, LUAN C

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 04/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

A

<b>Office Action Summary</b>	<b>Application No.</b> 10/057,138	<b>Applicant(s)</b> ZUNIGA-ORTIZ ET AL.	
	<b>Examiner</b> Luan Thai	<b>Art Unit</b> 2827	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 06 January 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) 3,10-14,16-21 and 24-38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-9,15,22 and 23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

This Office action is responsive to the amendments filed January 06, 2004 and March 16, 2004.

Claims **1-32** are pending in this application.

Claims **3, 10-14, 16-21 and 24-38** have been withdrawn from consideration.

#### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 4-9, and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Lin et al. (6,426,556).

Regarding claims 1, 4-8, and 15, Lin et al disclose (see specifically figures **14-15**) a semiconductor device comprising a semiconductor chip (10) of silicon having a planar active surface including an integrated circuit protected by an inorganic overcoat (32) (e.g., a passivation layer of polyimide), the circuit having a plurality of aluminum contact pads (24), each of contact pads (24) having an added conductive layer (33/34/35) on the metallization (24), the added layer having a conformal surface adjacent the chip, including peripheral portions of the overcoat (32), and a planar outer surface defining a flat outline to be substantially

parallel to the chip surface, wherein the added conductive layer consists of at least two conductive sub-layers, one being a conductive diffusion barrier (33) of chromium and a bondable layer (35) of gold. Although Lin et al. do not explicitly disclose that the flat outer surface of the conductive added layer is suitable to form metallurgical bonds without melting, this feature is taken to be inherent in Lin et al's device since the added conductive layer (33/34/35) of Lin et al is made of gold and has a planar outer surface defining a flat outline as the structure being claimed.

Regarding claim 9, although Lin et al. do not explicitly teach that the inorganic overcoat is moisture impermeable and stiff, this feature is taken to be inherent in Lin et al device since the layer (32) in Lin et al's device is disclosed as "a passivation layer" and it is apparent that a passivation layer has the characteristic of being "moisture impermeable and stiff".

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. (6,426,556) in view of Kleffner et al (5,943,597 of record).

Regarding claim 2, the proposed device of Lin et al discloses all the limitations of the claimed invention as detailed above except for a *non-conductive layer over the overcoat*.

Kleffner et al while related to a similar semiconductor package design teach (see specifically figure 2) a non-conductive layer (16) (e.g., a second passivation layer) of polyimide being over the overcoat layer (14) (e.g., the first passivation layer). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Lin et al's device by apply a second passivation layer on the first passivation layer, as taught by Kleffner et al, in order to improve the protection of the active surface of the semiconductor chip from harmful environmental conditions and such modification is held to be within the ordinary designing ability expected of a person skilled in the art.

5. Claims 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. (6,426,556) in view of Elenius et al (6,287,893 of record).

Regarding claims 22-23, the proposed device of Lin et al. discloses all the limitations of the claimed invention as detailed above except for another protective layer formed on the chip surface opposite the active surface.

Elenius et al while related to a similar semiconductor structure design teach (see specifically figure 2) a second polyimide layer (34) being formed on the back surface (e.g., the chip surface opposite the active surface) of the semiconductor chip (14) in order to protect the backside of the semiconductor

chip. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Lin et al's device by forming a protective layer on the backside surface of the chip, as taught by Elenius et al, in order to protect the backside of the chip from harmful environmental conditions and such modification is held to be within the ordinary designing ability expected of a person skilled in the art.

### ***Conclusion***

6. Applicant's arguments with respect to claims 1-2, 4-9, 15, and 22-23, filed on January 06, 2004, have been fully considered, but they are deemed to be moot in view of the new grounds of rejection.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action because the newly added limitations (e.g., the underlined portions) in claims 1 and 2 raise new issues that would require further consideration and/or search. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

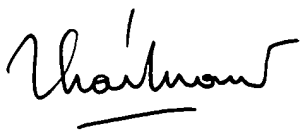
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luan Thai whose telephone number is 571-272-1935. The examiner can normally be reached on 6:45 AM - 4:15 PM, Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Luan Thai', with a horizontal line underneath.

Luan Thai  
March 28, 2004